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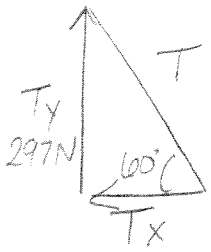
b) Cont...



$$\tan\theta = \frac{T_y}{T_x}$$

$$\tan 60^\circ = \frac{297\,N}{T_x}$$

$$T_x = 171\,N$$

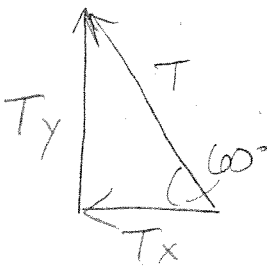
ΣF_x: $T_x = R_x$ so $\boxed{R_x = 171\,N}$

ΣF_y: $W_{Bear} + W_{Beam} + W_{Goodies} = R_y + T_y$

$700N + 200N + 80N = R_y + 297N$

$\boxed{R_y = 683\,N}$

c) $T_{max} = 900N$



$$T_y = T \cdot \sin\theta$$

$$= (900N)(\sin 60^\circ)$$

$$T_y = 779\,N$$

$\Sigma\tau$: $\tau_{Bear} + \tau_{Beam} + \tau_{Goodies} = \tau_{Ry} + \tau_{Ty}$

$(700N) \cdot r_{Bear} + (200N)(3.0m) + (80N)(6.0m) = R_y \cdot (0m) + (779N)(6.0m)$

$\boxed{r_{Bear} = 5.14\,m}$